UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/545,272	04/07/2000	Senthil Sivakumar	CISCO-1787	1978

			EXAMINER

7590   03/04/2005

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EXAMINER

MILLS, DONALD L

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	09/545,272	SIVAKUMAR, SENTHIL
Office Action Summary	Examiner	Art Unit	
	Donald L Mills	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 February 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>14-30</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>14-30</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 14-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 14, 22, and 30, the claims specify *if no mapping between the destination MAC address and port exists, then until a reply is received from a port associated with the destination MAC address, iteratively...* (For example, see claim 14, lines 5-6.) It is unclear from the context of the claim how the loop would ever end if the destination address were unreachable. Further, the specification teaches (Referring to Figure 5,) flooding (Step 230,) or observing a quiet period (Step 320,) then returning to bridge processing (Step 250). The term "iteratively" suggests performing the operation continuously for a single unknown mapping until a response is received from the node with the corresponding MAC address, which is not the case since the operation consists of performing flooding or silence then returning to bridge processing (not to flood control processing.) At best, the specification teaches repeating the process a second time (See page 8, lines 18-20,) but not an infinite number of times until a mapping is achieved. For the purpose of this examination, the Examiner will interpret this as relating performing flooding for a first unknown destination, ceasing flooding for the first unknown destination, and then repeating the process for a second unknown destination.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 14-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al.

(US 6,310,874 B1), hereinafter referred to as Miller, in view of Li et al. (US 6,535,507 B1),

hereinafter referred to as Li.

Regarding claims 14, 22, and 30, Miller discloses a switch, which comprises:

Processing a packet having a destination MAC address to determine whether a mapping

between the destination MAC address and a port exists (Referring to Figures 1 and 2, the address

resolution processor examines the destination MAC address in the header and whether entry

(port) corresponds to it. See column 3, lines 53-59.)

If no mapping between the destination MAC address and port exists, then until a reply is

received from a port associated with the destination MAC address, iteratively:

Performing broadcast flooding of packets/Ceasing broadcast flooding of packets

(Referring to Figure 3, the data unit is flooded, step **56**, and flow returns to step **50** (in which

flooding must cease for a period of time to allow a response to be received) and discontinues

flooding if the destination address is in the address table in step **52** of the switch. See column 4,

lines 61-66 and column 5, lines 4-6.)

Miller does not disclose *performing broadcast flooding for a first predetermined time period and ceasing broadcast flooding of packets for a second predetermined time period.*

Li teaches a time-out clock when messages are forwarded (flooding for a first predetermined time period) (See column 14, lines 54,) and a delay clock used to prevent flooding for a predetermined period of time (ceasing flooding for a second predetermined time period) subsequent to the last flooding by the same voice interface control unit **24** (See column 10, lines 42-46.)

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the time-out and delay clocks of Li in the system of Miller since Miller is silent to its flooding methodology. One of ordinary skill in the art at the time of the invention would have been motivated to do so prevent network overloading due to repeated and excessive flooding.

Regarding claims 15 and 23 as explained in the rejection statement of claims 14 and 22, the primary references teach all of the claim limitations of claims 14 and 22 (parent claims).

Miller does not disclose wherein *the first predetermined time period and said second predetermined time period is set by a network administrator.*

Miller teaches after data unit is flooded, step **56**, and flow returns to step **50** and discontinues flooding if the destination address is in the address table in step **52** of the switch, the time period of flooding is set by the system administrator (See column 4, lines 61-66 and column 5, lines 4-6.) Li teaches a time-out clock when messages are forwarded (flooding for a first predetermined time period) (See column 14, lines 54,) and a delay clock used to prevent flooding for a predetermined period of time (ceasing flooding for a second predetermined time period)

subsequent to the last flooding by the same voice interface control unit **24** (See column 10, lines 42-46.)

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the time-out and delay clocks of Li in the system of Miller since Miller is silent to its flooding methodology. One of ordinary skill in the art at the time of the invention would have been motivated to do so prevent network overloading due to repeated and excessive flooding.

Regarding claims 16 and 24 as explained in the rejection statement of claims 14 and 22, the primary references teach all of the claim limitations of claims 14 and 22 (parent claims).

Miller does not disclose *prior to the performing broadcast flooding of packets, consulting a filter table to determine said first predetermined time period.*

Miller teaches after data unit is flooded, step **56**, and flow returns to step **50** and discontinues flooding if the destination address is in the address table in step **52** of the switch, the time period of flooding is set by the system administrator (See column 4, lines 61-66 and column 5, lines 4-6.) Li teaches a time-out clock when messages are forwarded (flooding for a first predetermined time period) (See column 14, lines 54,) and a delay clock used to prevent flooding for a predetermined period of time (ceasing flooding for a second predetermined time period) subsequent to the last flooding by the same voice interface control unit **24** (See column 10, lines 42-46,)

It would have been obvious choice in design to one of ordinary skill in the art at the time the invention was made to implement the a table outlining the flooding period in the system of Li and of Miller. One of ordinary skill in the art at the time the invention was made would have been motivated to do so in order to allow variable flooding periods as dictated by a preset table.

Regarding claims 17 and 25 as explained in the rejection statement of claims 14 and 22,

the primary references teach all of the claim limitations of claims 14 and 22 (parent claims).

Miller does not disclose *setting a flag to indicate a quiet period in which no broadcast*

flooding is to be performed after said first predetermined time period passes.

Li teaches a time-out clock when messages are forwarded (flooding for a first

predetermined time period) (See column 14, lines 54,) and a delay clock used to prevent flooding

for a predetermined period of time (ceasing flooding for a second predetermined time period)

subsequent to the last flooding by the same voice interface control unit **24** (See column 10, lines

42-46.)

It would have been obvious to one of ordinary skill in the art at the time of the invention

to implement the time-out and delay clocks of Li in the system of Miller, utilizing a flag bit,

since Miller is silent to its flooding methodology. One of ordinary skill in the art at the time of

the invention would have been motivated to do so prevent network overloading due to repeated

and excessive flooding.

Regarding claims 18 and 26, the primary reference further teaches *wherein an entry is*

made in a filter table if no mapping between the destination MAC address and port exists, then

until a reply is received from a port associated with the destination MAC address (Referring to

Figures 1 and 2, the address resolution processor generates a new address table entry that

includes the MAC address and the ports associated with the new address, then the response is

received. See column 3, lines 63-67 and column 4, lines 1-4.)

Regarding claims 19 and 27, the primary reference further teaches *wherein the entry is*

removed from the filter table after a port associated with the destination MAC address replies to

the broadcast flooding of packets (Referring to Figure 4, if the address is determined to have

been learned and the address resolution processor is done processing the data unit, the learn

pending indicator is reset for the I/O ASIC as indicated by step **72**. See column 5, lines 27-31.)

Regarding claims 20 and 28, the primary reference further teaches *wherein an entry is*

made in the filter table indicating a number of packets that are directed at the destination MAC

address (Referring to Figures 1 and 2, the address resolution processor generates a new address

table entry that includes the MAC address, of the packet (indicating a number of packets that are

directed) and the ports associated with the new address, then the response is received. See

column 3, lines 63-67 and column 4, lines 1-4.)

Regarding claims 21 and 29 as explained in the rejection statement of claims 14 and 22,

the primary references teach all of the claim limitations of claims 14 and 22 (parent claims).

Miller does not disclose *wherein the entry indicating the number of packets directed at a*

destination address is used to determine which entry to delete from the filter table if the filter

table becomes overpopulated with entries.

Miller teaches the address resolution processor generates a new address table entry that

includes the MAC address and the ports associated with the new address, and then the response

is received (See column 3, lines 63-67 and column 4, lines 1-4.)

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to delete the previous entry in the address table when the physical memory of the table

is exceeded. One of ordinary skill in the art would have been motivated to do so in order to

accommodate new routes that must be formed and stored.

Response to Arguments

5.   Applicant's arguments, see page 8, lines 5-9, filed February 7, 2005, with respect to the

rejection(s) of claim(s) 14-30 under 35 USC § 103 have been fully considered and are

persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration,

a new ground(s) of rejection is made in view of Miller et al. (US 6,310,874 B1), hereinafter

referred to as Miller, in view of Li et al. (US 6,535,507 B1), hereinafter referred to as Li.

Although, Miller is silent to the flooding process utilized in step **56** of Figure 3, it would be

logical and necessary to implement a time-out system or flooding interval. Otherwise, when a

data unit is received and its destination is unknown, the system of Miller would result in an

infinite loop of flooding (Referring to Figure 3, repeating steps **50, 52, 54,** and **56.**) Furthermore,

intervals of flooding are well known in the art as taught by Li and Huitema (See page 165,

paragraph 4,) and necessary to prevent traffic congestion and link paralysis.

Conclusion

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Donald L Mills whose telephone number is 571-272-3094. The

examiner can normally be reached on 8:00 AM to 4:30 PM.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the

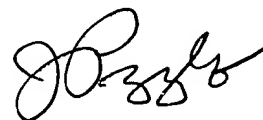organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Donald L Mills

February 25, 2005

JOHN PEZZLO
PRIMARY EXAMINER